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10/525,417	09/20/2005	Craig Matthew Brown	00169.002764.	5089
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EXAMINER WELCH, DAVID T				
ART UNIT 2628		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/525,417

Applicant(s)

BROWN, CRAIG MATTHEW

Examiner

DAVID T. WELCH

Art Unit

2628

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17, 21, 22, 24, 25, 30, 31 and 39-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17, 21, 22, 24, 25, 30, 31 and 39-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 8/28/2009 and 12/22/2009
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's amendments filed on September 21, 2009 have been entered. Claims 1 has been amended. Claim 42 has been canceled. No claims have been added. Claims 1-17, 21, 22, 24, 25, 30, 31, and 39-41 are still pending in this application, with claims 1, 15, 21, 22, 24, 25, 30, and 31 being independent.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-17, 21, 22, 24, 25, 30, 31, and 39-41 are rejected under 35 U.S.C. 102(b) as being anticipated by *Adobe PDF 1.4 Specification*, December 2001, referred herein as Adobe.

Regarding claim 1, Adobe teaches a computer-implemented method of representing an amount of image color in a composite image (page 410, paragraph 4, beginning with "A given object..." through paragraph 6), said method comprising the steps of: generating at least one additional opacity channel for use in creating the composite image (page 421, paragraph 1; page 422, paragraph 2, beginning with "All of these...", and associated functions; page 423, the first two paragraphs, and associated

functions; page 426, paragraph 3, beginning with "These conventions..." and subsequent functions; additional opacity channel q_r/q_i); compositing at least one graphical object having object color and object opacity, with an image having image opacity and the image color, to create the composite image, the composite image having composite image color and composite image opacity, the composite image color and composite image opacity being derived from one or more of the object color, the object opacity, the image color and the image opacity (color compositing: page 419, section 7.2.5, the color compositing formula and succeeding paragraph; opacity compositing: page 423, the first two paragraphs, and associated functions and table); compositing the object opacity with the additional opacity channel to update the additional opacity channel, the updated additional opacity channel representing an amount of the image color remaining in the composite image following compositing of the at least one graphical object with the image (page 419, section 7.2.5, the color compositing formula and succeeding paragraph; page 422, paragraph 2, beginning with "All of these...", and associated functions; page 423, the first two paragraphs, and associated functions; page 425, paragraph 1, lines 1-3; paragraph 2, beginning with "The objects contained"; page 426, paragraph 3, beginning with "These conventions..." and subsequent functions; page 440, paragraph beginning with "The second method"; q_r/q_i represents the amount of image color remaining following the composition of the object and image); and storing at least the updated additional opacity channel in a computer-readable memory (page 705, paragraph 5, beginning with "Memory limits"), wherein the steps are performed on a processor (page 705, paragraph 1, lines 2-4).

Regarding claim 2, Adobe teaches a method according to claim 1, and further teaches the method, further comprising the step of utilizing the updated additional opacity channel to remove the image color and image opacity remaining in the composite image following composition with the object color and object opacity (page 411, paragraph 3, beginning with "An object's opacity...", lines 1-4; paragraph 5, beginning with "One or more..."; page 417, the blend modes, e.g. Overlay, Darken, Lighten; furthermore, the purpose of compositing alpha [opacity] values with color is to determine to what degree, and in what manner, the images being composited add to, or remove from, one another's color and opacity).

Regarding claim 3, Adobe teaches a method according to claim 2, and further teaches the method, further comprising the step of utilizing the updated additional opacity channel to composite the object color and object opacity with the image color and image opacity (color compositing: page 419, section 7.2.5, the color compositing formula and succeeding paragraph; opacity compositing: page 423, the first two paragraphs, and associated functions).

Regarding claim 4, Adobe teaches a method according to any one of claims 1 to 3, and further teaches the method, wherein the at least one object is one object of a grouped plurality of objects (page 425, paragraph 1, lines 1-3; page 411, paragraph 5, beginning with "One or more...").

Regarding claim 5, Adobe teaches a method according to claim 4, and further teaches the method, further comprising the step of applying a group effect to the grouped plurality of objects (page 425, paragraph 2, beginning with "The objects contained"; page 440, paragraph beginning with "G can be").

Regarding claim 6, Adobe teaches a method according to claim 4, and further teaches the method, further comprising the step of compositing object color and object opacity of each object of the grouped plurality of objects with the image color and image opacity (page 425, paragraph 2, beginning with "The objects contained"; page 411, paragraph 5, beginning with "One or more..."; page 426, the group compositing formula C_i at the bottom).

Regarding claim 7, Adobe teaches a method according to claim 1, and further teaches the method, further comprising the step of inverting the opacity values of the updated additional opacity channel (page 423, the q_r function; substituting the union function into the opacity compositing q_r function, the opacity is inverted, i.e. 1-opacity; also, see page 423, paragraph 2, beginning with "where b and s...").

Regarding claim 8, Adobe teaches a method according to claim 1, and further teaches the method, further comprising the step of copying the image to form an image copy (page 77, the description of bit position 12, lines 1-2).

Regarding claim 9, Adobe teaches a method according to claim 8, and further teaches the method, further comprising the step of compositing the object color and object opacity with color and opacity component values of the image copy (color compositing: page 419, section 7.2.5, the color compositing formula and succeeding paragraph; opacity compositing: page 423, the first two paragraphs, and associated functions).

Regarding claim 10, Adobe teaches a method according to claim 9, and further teaches the method, wherein the updated additional opacity channel represents opacity component values associated with the image copy remaining in the image copy following composition of the object color and object opacity with the color and opacity component values of the image copy (page 410, paragraph 4, beginning with "A given object...", lines 1-3; the compositing is cumulative, therefore the altered opacity channel represents the opacity following the composition, and is then used for the next composition).

Regarding claim 11, Adobe teaches a method according to claim 9, and further teaches the method, further comprising the step of utilizing the updated additional opacity channel to remove the color and opacity component values of the image copy remaining in the image copy following composition of the object color and object opacity with the color and opacity component values of the image copy (page 411, paragraph 3, beginning with "An object's opacity...", lines 1-4; paragraph 5, beginning with "One or more..."; page 417, the blend modes, e.g. Overlay, Darken, Lighten; furthermore, the purpose of compositing alpha [opacity] values with color is to determine to what degree, and in what manner, the images being composited add to, or remove from, one another's color and opacity).

Regarding claim 12, Adobe teaches a method according to claim 11, and further teaches the method, further comprising the step of utilizing the updated additional opacity channel to composite the object color and object opacity with the image color and image opacity (color compositing: page 419, section 7.2.5, the color compositing

formula and succeeding paragraph; opacity compositing: page 423, the first two paragraphs, and associated functions; page 410, paragraph 4, beginning with "A given object...", lines 1-3; the compositing is cumulative, thus the altered opacity channel is used for the next composition).

Regarding claim 13, Adobe teaches a method according to claim 1, and further teaches the method, wherein the object color and object opacity are accessed from an image file (page 1, section 1.1, paragraph 1, beginning with "This book provides...", lines 3-5).

Regarding claim 14, Adobe teaches a method according to claim 1, and further teaches the method, wherein the image color and image opacity are accessed from an image file (page 1, section 1.1, paragraph 1, beginning with "This book provides...", lines 3-5).

Regarding claim 15, Adobe teaches a computer-implemented method of representing an amount of image color in a composite image (page 410, paragraph 4, beginning with "A given object..." through paragraph 6), said method comprising the steps of: generating at least one additional opacity channel for use in creating the composite image (page 421, paragraph 1; page 422, paragraph 2, beginning with "All of these...", and associated functions; page 423, the first two paragraphs, and associated functions; page 426, paragraph 3, beginning with "These conventions..." and subsequent functions; additional opacity channel q_r/q_i); compositing at least one graphical object having object color and object capacity, with an image having image opacity and the image color, to create the composite image, the composite image having composite image color and composite image opacity, the composite image color

and composite image opacity being derived from one or more of the object color, the object opacity, the image color and the image opacity (color compositing: page 419, section 7.2.5, the color compositing formula and succeeding paragraph; opacity compositing: page 423, the first two paragraphs, and associated functions and table); compositing the object opacity with the additional opacity channel to update the additional opacity channel, the updated additional opacity channel representing an amount of the image color remaining in the composite image following compositing of the at least one graphical object with the image (page 419, section 7.2.5, the color compositing formula and succeeding paragraph; page 422, paragraph 2, beginning with "All of these...", and associated functions; page 423, the first two paragraphs, and associated functions; page 425, paragraph 1, lines 1-3; paragraph 2, beginning with "The objects contained"; page 426, paragraph 3, beginning with "These conventions..." and subsequent functions; page 440, paragraph beginning with "The second method"; q_i/q_i represents the amount of image color remaining following the composition of the object and image); storing at least the updated additional opacity channel in a computer-readable memory (page 705, paragraph 5, beginning with "Memory limits"); and utilizing the stored updated additional opacity channel to remove the remaining image color in the composite image (page 411, paragraph 3, beginning with "An object's opacity...", lines 1-4; paragraph 5, beginning with "One or more..."; page 417, the blend modes, e.g. Overlay, Darken, Lighten; furthermore, the purpose of compositing alpha [opacity] values with color is to determine to what degree, and in what manner, the images being composited add to, or remove from, one another's color and opacity), wherein the steps are performed on a processor (page 705, paragraph 1, lines 2-4).

Regarding claims 16 and 17, the limitations of these claims correspond to the limitations of claims 3 and 4, respectively. Thus, they are rejected on the same grounds as claims 3 and 4, respectively.

Regarding claims 21 and 22, the limitations of these claims correspond to the limitations of claims 1 and 15, respectively. Thus, they are rejected on the same grounds as claims 1 and 15, respectively.

Regarding claims 24 and 25, Adobe teaches an apparatus for representing an amount of image color in a composite image (page 410, paragraph 4, beginning with "A given object..." through paragraph 6), said apparatus comprising: a memory for storing data and a computer program (page 705, paragraph 5, beginning with "Memory limits"); and a processor coupled to said memory for executing said computer program (page 705, paragraph 1, lines 2-4). The remaining limitations of these claims correspond to the limitations of claims 1 and 15, respectively. Thus, they are rejected on the same grounds as claims 1 and 15, respectively.

Regarding claims 30 and 31, the limitations of these claims correspond to the limitations of claims 1 and 15, respectively. Thus, they are rejected on the same grounds as claims 1 and 15, respectively.

Regarding claims 39 and 41, Adobe teaches the methods according to claims 1 and 15, respectively, and further teaches the methods, wherein the additional opacity channel is initially set to fully opaque (page 133, paragraph beginning with "PDF's graphics", lines 1-3; page 440, paragraph beginning with "The second method", lines 1-2; page 459, paragraph beginning with "As stated", lines 3-6 and paragraph beginning "In this blend mode", lines 3-4).

Regarding claim 40, Adobe teaches the methods according to claim 4, and further teaches the method, further comprising the step of compositing the composite image with the image using a group opacity (page 425, paragraph 2, beginning with "The objects contained" and the last bullet point; page 426, the group compositing formula C_i at the bottom).

Response to Arguments

4. Applicant's arguments filed September 21, 2009, with respect to the 102 rejections, have been fully considered but they are not persuasive.

On pages 13-15 of the Applicant's Remarks, the Applicant argues that Adobe does not teach an updated additional opacity channel because 1) the Office Action does not indicate where the Examiner finds support for the citation of q_r/q_i thus support for the citation is requested, 2) the result opacities of Adobe do not indicate an amount of image color remaining in the composited image, 3) Adobe does not have enough opacity channels to teach the feature of the claimed invention, and 4) because the claimed opacity channel is not a resultant value, the Office Action's interpretation is inconsistent, and clarification is requested of how the opacity channels of Adobe relate to the opacity channels of the claim. The Examiner respectfully disagrees with these arguments.

Regarding the first argument, the Examiner respectfully submits that the Office Action very clearly cited each limitation of the claim, thus support for the citation of q_r/q_i has been provided. Furthermore, and in regard to the fourth argument, the fact that q_r/q_i

is a resultant value does not in any way render the interpretation inconsistent (except that maybe it differs from the Applicant's particular interpretation), nor does it preclude Adobe from teaching an updated additional opacity channel. Indeed, the claimed updated additional opacity channel is necessarily "resultant" because compositing the object opacity with the additional opacity channel to update the opacity channel, as claimed in claim 1, produces a "resultant" updated opacity. That said, as further clarity has been requested, the Examiner will provide one example of Adobe's teaching of an updated additional opacity channel herein. Although Adobe contains multiple examples of the teaching, for clarity the Examiner will discuss the example of q_r . Regarding the opacities, the claim requires compositing an object opacity and an image opacity, and compositing the object opacity with an additional opacity channel to update the opacity channel. One cited section of Adobe, page 423, discloses an additional opacity channel q_r . Adobe, page 422, discloses a source object opacity q_s comprising object opacity q_i , and on page 423, discloses that the object opacity is composited with an image opacity q_b to produce a value for the additional opacity channel q_r . As was very well known in the art at the time of the invention, and clearly disclosed by Adobe, for subsequent blending operations of group compositing, the value of the additional opacity channel q_r becomes the source opacity, which, as previously discussed, is composited again to update the result opacity q_r . This process is iterative in nature, and therefore the additional opacity channel is updated as the group compositing continues, until a final opacity is reached. Examples of Adobe's disclosure of this concept can be found on cited page 424, the second bullet, which states that "The result is then normalized by

the result shape, ensuring that when this shape and opacity are subsequently used together in another compositing operation, the opacity's contribution will be correctly represented" and on cited page 426, which discuss how the previously calculated opacities are used to calculate subsequent opacities, and disclose formulas that illustrate this concept. Additionally, in light of this discussion, and in regard to the third argument, the Examiner respectfully submits that it is clear from this example that Adobe has "enough" opacity channels to teach the features of the claim. Therefore, the Examiner respectfully submits that Adobe teaches these limitations of the claim.

Regarding the second argument, the Examiner first respectfully submits that the example of page 14 of the Applicant's Remarks is not accurate. First, a fully opaque, 100% opacity image composited with a 50% opacity object does not result in a 100% composited opacity. Second, the two scenarios given in the example would appear to indicate that regardless of what the image and object opacities are, q_r will always be 100%, which is not correct. Regardless, however, the Examiner also respectfully submits that asserting that the opacity q_r has no relation to the amount of image color of the composited image is simply incorrect; to the contrary, the purpose of utilizing opacity information and performing compositing operations is specifically to determine the amount of color contributing to, and remaining in, a composited image, as will be further discussed herein. As was very well known to one of ordinary skill in the art at the time of the invention, if, for example, an opacity value is 0, the pixel is transparent, and there is no color contribution from the pixel. If, on the other hand the opacity is 1, the pixel is opaque and contributes all of its color. Generally, the opacity value will be multiplied by

the color components of the pixel to determine the color contribution of the pixel. So if the opacity is .5, or 50%, then each color value would be reduced by 50% and the color remaining would be 50% of the original color. As previously discussed, in Adobe, the additional opacity channel comprises the image opacity and object opacity, and is updated throughout the compositing process, until a final value is obtained. This final value determines the color contribution to the composite image, and therefore represents both the amount of image color remaining, and the amount of object color remaining. Adobe contains several examples of this concept, for example on page 414, the color compositing formula (versions of which are subsequently disclosed in regard to group compositing, as well as in other sections) which shows image color and object source color each being modified by a result alpha that, accordingly, determines the amount of each of those colors remaining in the image. That said, the Examiner concedes that there may be differences between the claimed additional opacity channel and the additional opacity channel of Adobe, but such differences are not reflected in the current claims.

On pages 15 and 16 of the Applicant's Remarks, the Applicant argues that the remaining independent claims are patentable over the prior art for reasons similar to those discussed in regard to claim 1, and that the remaining dependent claims are therefore also patentable. The Examiner respectfully disagrees with these arguments, for the reasons discussed above.

For these reasons, and the reasons discussed in the above and previous Office Actions, the Examiner respectfully maintains the rejection of the claims.

Conclusion

5. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Ahmad (U.S. Patent No. 6,532,022); Method and apparatus for model-based compositing.

Pfister et al. (U.S. Patent No. 6,903,738); Image-based 3D modeling rendering system.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID T. WELCH whose telephone number is

(571)270-5364. The examiner can normally be reached on Monday-Thursday, 8:00-5:30 EST, and alternate Fridays, 8:00-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on (571)272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/dtw/

/XIAO M. WU/
Supervisory Patent Examiner, Art Unit 2628